## Operations with Functions

Not all rules can be combined, rules that are functions can be

If $f$ and $g$ are two functions with a common domain, then the sum of $f$ and $g$, is defined to be:

$$
(\mathbf{f}+\mathbf{g})(\mathbf{x})=\mathbf{f}(\mathbf{x})+\mathbf{g}(\mathbf{x})
$$

The difference of $\mathbf{f}$ and $\mathbf{g}$ is defined by: $(\mathbf{f}-\mathbf{g})(\mathbf{x})=\mathbf{f}(\mathbf{x})-\mathbf{g}(\mathbf{x})$ and
the quotient of $\mathbf{f}$ and $\mathbf{g}$ is defined by $(f / g)(x)=\frac{f(x)}{g(x)}$ where $g(x)$ cannot be zero.

